

Biodiversity Surveys and Inventories (BS&I)

including support for Planetary Biodiversity Inventories: Mission to an (almost) unknown planet (PBI)

Program Solicitation

NSF 02-186



National Science Foundation

Directorate for Biological Sciences
Division of Environmental Biology
Directorate for Geosciences
Division of Earth Sciences
Directorate for Social, Behavioral, and Economic Sciences
Office of International Science and Engineering

ALL Species Foundation

Alfred P. Sloan Foundation

Full Proposal Target Date(s):

January 10, 2003

for BS&I and PBI;

July 10, 2003

for BS&I only

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Biodiversity Surveys and Inventories (BS&I)

Synopsis of Program:

The Biodiversity Surveys and Inventories Program (BS&I) supports collecting, identifying, vouchering, and describing the species-level diversity of all forms of life on Earth, from microbes to mammals, including expeditionary work to document biotic diversity in poorly known terrestrial, freshwater, and marine environments. Supported surveys may be primarily area-based (focusing on species inventory and new species discovery, plus in some cases ecological, biogeographic, and/or evolutionary hypothesis testing), primarily clade-based (continental-scale to global species inventory and discovery within a particular taxonomic group), or primarily guild-based (surveys that couple species inventory and discovery with macroecological, historical biogeographic, and/or macroevolutionary hypothesis

testing). Beginning in 2003, the BS&I program is partnering with the ALL Species Foundation, the Alfred P. Sloan Foundation, and other parts of NSF to support Planetary Biodiversity Inventories (PBI) of the worldwide, species-level diversity of entire major groups of organisms.

Cognizant Program Officer(s):

- Norman Platnick, Program Director, Directorate for Biological Sciences, Division of Environmental Biology, 635 N, telephone: (703) 292-8481, fax: (703) 292-9064, email: nplatnic@nsf.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.074 --- Biological Sciences
- 47.050 --- Geosciences
- 47.075 --- Social, Behavioral and Economic Sciences

Eligibility Information

- **Organization Limit:** None Specified.
- **PI Eligibility Limit:** None Specified.
- **Limit on Number of Proposals:** None Specified.

Award Information

- **Anticipated Type of Award:** Standard or Continuing Grant
- **Estimated Number of Awards:** 35 - 40 grants awarded each year pending funding availability
- **Anticipated Funding Amount:** \$10,000,000.00 total anticipated for Fiscal Year 2003

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Full Proposal Preparation Instructions:**

Supplemental Preparation Guidelines

- The program announcement/solicitation contains supplements to the standard Grant Proposal Guide (GPG) proposal preparation guidelines. Please see the full program announcement/solicitation for further information.

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required.
- **Indirect Cost (F&A) Limitations:** Not Applicable.
- **Other Budgetary Limitations:** Not Applicable.

C. Due Dates

- **Full Proposal Target Date(s):**
January 10, 2003
for BS&I and PBI;
July 10, 2003
for BS&I only

D. FastLane Requirements

- **FastLane Submission:** Full proposal submission is required.
- **FastLane Contact(s):**
 - Elaine M Washington, Program Technology Analyst, Directorate for Biological Sciences, Division of Environmental Biology, 635 N, telephone: 703-292-8481, fax: 703-292-9064, email: biofl@nsf.gov

Proposal Review Information

- **Merit Review Criteria:** National Science Board approved criteria. Additional merit review considerations apply. Please see the full funding opportunity document for further information.

Award Administration Information

- **Award Conditions:** Additional award conditions apply. Please see the full funding opportunity document for further information.
- **Reporting Requirements:** Additional reporting requirements apply. Please see the full funding opportunity document for further information.

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I. INTRODUCTION

The Biodiversity Surveys and Inventories Program (BS&I) invites proposals to discover and document the species-level diversity of all forms of life on Earth. Supported surveys may be (1) primarily area-based (focusing on species inventory and new species discovery, plus in some cases ecological, biogeographic, and/or evolutionary hypothesis testing), (2) primarily clade-based (continental-scale to global species inventory and discovery within a particular taxonomic group), or (3) primarily guild-based (surveys that couple species inventory and discovery with macroecological, historical biogeographic, and/or macroevolutionary hypothesis testing). Thus, projects may balance (and trade-off) relative amounts of effort devoted to species inventory and discovery, and to ecological/biogeographic/evolutionary hypothesis testing. Those projects focusing on species discovery are encouraged to emphasize organisms that are poorly known, such as bacteria, archaea, protists, fungi, and invertebrates, and geographic regions, including oceanographic areas, that are poorly surveyed.

Elements likely to be common to BS&I projects, depending on their focus, include the following: (1) Collections -- natural history specimens, cultures, stocks or other physical samples are the material objects of discovery, study, and inventory. Methods of collection and curatorial arrangements for the care and vouchering of samples must be described. Proposals to collect and study organisms that have a minimal museum (or collection) tradition should indicate this fact, discuss the form that useful collections or cultures would take as well as their impact on future taxonomic practice in the group, and present plans for implementation and curation of such collections, stocks, or cultures. (2) Species inventories -- documentation of the number, taxonomic placement, and, where appropriate, relative abundance of (and/or interactions among) species encountered, and integration with prior knowledge of species occurrences in the region under study, are required. Such documentation may take several forms, depending on the current state of knowledge for the targeted taxonomic groups, but all projects should develop and begin implementation of plans for Internet-accessible products in interoperable formats, such as species checklists or catalogs, quadrat-based inventories, interactive keys or other expert identification systems, and taxon authority files. (3) Specimen databases -- the collections newly made during the course of the project, along with specimens, samples, or cultures already in repositories, should be identified in web-accessible databases, for further use by scientists and others. (4) Locality databases, with sites fully geo-referenced (via Global Positioning System, GPS, technology for all newly sampled sites) to facilitate mapping and GIS applications. (5) Education and Outreach -- field work to collect and identify organisms provides attractive training opportunities for students at all levels, and when conducted abroad, also presents opportunities for international collaboration with host country scientists and students. These students and colleagues should be partners in the research, conceptually and logistically, to the fullest extent possible.

II. PROGRAM DESCRIPTION

Biodiversity Surveys and Inventories proposals should address the following five topics in the Project Description section of the proposal, following the Results from Prior NSF Support section (if required).

1. **Conceptual Issues.** All BS&I projects should lead to better description and documentation of the biological diversity of particular areas. Lack of knowledge about the taxa and region, however, cannot be the sole justification for a proposal. In the context of a highly competitive merit review, BS&I proposals must make a case for substantial impact on scientific understanding of biodiversity. The proposal should discuss how the collections, species inventories, or other products will facilitate ongoing or future research in such fields, for example, as systematics, phylogenetics, ecology, biogeography, coevolution, paleoclimatology, or natural resource management. Discussion of these conceptual links should be specific to the taxa and regions under study, and may include plans for revisionary or monographic work, biogeographic analyses, tests of hypotheses of micro- or macro-evolutionary or ecological dynamics, or substantive efforts to enhance biological conservation status in the region. Guild-focused proposals will be expected to explicitly test macroecological, historical biogeographic, and/or macroevolutionary hypotheses.
2. **Taxonomic Breadth.** Proposals must specify what taxonomic group or groups are to be sampled, from what geographic regions, oceanographic areas, stratigraphic horizons, or ecological communities, and must justify that breadth of sampling. Targeting a diversity of taxa is encouraged; if a narrow group of closely related taxa is the focus, the scale of sampling must be regional or greater. Sampling of major ecological assemblages -- such as soil microorganisms; litter faunas; vertebrates and their parasites; vascular plants and their fungal endophytes, insect herbivores, or pollinators -- should be considered where collecting methods achieve economies of return or enable ecological, biogeographic, or evolutionary hypothesis testing. Surveys of relatively small clades, or of population diversity within individual species, must address the ecological or evolutionary bases of biological diversity at large geographic scales. Estimates of the numbers of new species, plans for the description of these new taxa, and details on the electronic dissemination of information about the new collections, cultures, or

samples should be provided (note that projects which focus on testing ecological, biogeographic, or evolutionary questions need not necessarily involve new species discovery or description). Collections or other resources currently available for the taxa of interest in the region under study should be described, with plans for incorporating information about these collections and taxa into the study. Summary information on existing collections for the targeted taxa in the region under study constitutes the preliminary data useful to reviewers in evaluating the need for additional collecting. Include an estimate of how complete the proposed survey or inventory is likely to be for the taxonomic groups under study in the region at the conclusion of the project, along with a brief discussion of the methods for judging completion.

3.

Geographic and Ecological Scale. The geographic or ecological scale of the project should constitute a natural and compelling biological focus. Biogeographic regions or areas delimited on the basis of biological criteria are preferable to geopolitical units. Most BS&I projects focus on landscape, regional, or continental scales (for example, the southeastern United States, the Orinoco River drainage). Proposals focusing on species discovery must justify the need for a dedicated collecting effort on the logistic scale proposed, and must explain why existing collections and inventories are inadequate for developing conservation plans, assessing economic value of natural resources, or addressing particular systematic, ecological, biogeographic, or evolutionary questions. Proposals that focus on little-explored regions of the world and/or poorly known components of the biota are strongly encouraged, as are surveys of the biota of Long Term Ecological Research (LTER) sites, both those within the U.S. and those in the international LTER network (check the LTER website for information, at <http://lternet.edu/>).

4.

Urgency. The need for exploration and collecting may be substantially greater for certain regions than for others, for reasons such as impending habitat destruction, ignorance of critical components of the biota, or rare historical events. If appropriate, proposals should indicate why an immediate and intensive collecting effort is required. Justifications involving endangered habitats, threatened sites, or disappearing resources must make specific reference to the planned collection sites and to the sampling strategy, not simply to the broad region.

5.

Management Plan. The taxonomic complexity and spatial scale of most BS&I projects are likely to require cooperative work by several specialists, whether under the leadership of a single Principal Investigator or a team; explicit management plans are required, with time and place scheduling, delineation of tasks and responsibilities, and agendas for products at regular intervals during the course of the project. Management plans must address the following:

-- strategy, protocols, and timetable for collection, preparation, documentation, and distribution of all specimens, cultures, stocks or other material samples acquired during the study, with attention to long-term preservation and curation of the collections. Investigators should make use of GPS technology to record locality data; the degree of accuracy of this information must be commensurate with the taxonomic, ecological, biogeographic, or evolutionary issues being addressed. Costs of specimen preparation and storage are eligible items for support; letters from curators of the relevant repositories may be included in the FastLane section on Supplementary Documentation.

-- development of databases of information associated with the collections, including description of hardware and software components, the data model and elements of the database(s), quality-control of data entry, capacity for expansion, and Internet-accessibility (including complete metadata, networking protocols, and integration with other electronic information resources). Maintenance of the databases, like maintenance of the collections, will be a consideration in proposal review; letters of support from Information Technology managers may be included in the FastLane section on Supplementary Documentation.

-- permits or other required authorizations for the collecting and export/import activities, and logistics of cooperative work, in particular with host country scientists if conducted abroad. Prospective investigators wishing to establish collaborations with foreign scientists should review the guidance and opportunities provided through the Office of International Science and Engineering (check the NSF website at <http://www.nsf.gov/sbe/int/>). BS&I projects are expected to foster international cooperation, including the sharing of data across international boundaries, while at the same time assuring that specimens collected today will be available for study by researchers (of any nationality) now and in the future. Projects in the U.S. are expected to adhere to the regulations of the U.S. Fish and Wildlife Service, Forest Service, Bureau of Land Management, National Park Service, and other responsible government agencies. It is expected that the rights of private landowners will be respected at all times. Collecting permits or other authorization documents in hand should be submitted through the FastLane section on Supplementary Documentation.

-- training and other educational opportunities; these should be integrated in the conduct of the survey or inventory wherever feasible, with student partners sharing conceptually and logistically to the fullest extent possible. BS&I

grants are eligible for supplementation through the Research Experiences for Undergraduates (REU) program (see program announcement NSF 01-121, available on the NSF website at <http://www.nsf.gov/pubs/2001/nsf01121>), the Research Experience for Teachers (RET) program (see program announcement NSF 02-090, available on the NSF website at <http://www.nsf.gov/pubs/2002/nsf02090>), and the Research Opportunity Awards (ROA) program, which supports small-college faculty in research projects associated with the primary grant [see program announcement for Research in Undergraduate Institutions (RUI), NSF 00-144, available on the NSF website at <http://www.nsf.gov/pubs/2000/nsf00144/nsf00144.htm>]. ROA supplements and other supplements could be used to add taxonomic expertise during the course of the project as collections accumulate.

Special Instructions to Investigators Considering Large-Scale and/or Long-Term Inventories, including

Planetary Biodiversity Inventories (PBI): Mission to an (almost) unknown planet, a joint initiative of the ALL Species Foundation, the Alfred P. Sloan Foundation, and the National Science Foundation

Included here are very large-scale projects that can be completed in five years or less, and also longer-term studies (leaders of 10-20 year, large-scale projects should plan for a series of 5-year awards, anticipating one or more merit-reviewed renewal applications). Investigators are strongly encouraged to consult in advance of proposal submission with the BS&I Program Director concerning options for support of such long-term projects.

Why are large-scale projects needed? We belong to the first generation to learn that a mass extinction event is impending, and to the last generation with the opportunity to inventory much of our planet's biodiversity before it disappears forever. Because such broad knowledge will never again be achievable, the ALL Species Foundation, the Alfred P. Sloan Foundation, and the BS&I program, the Geology & Paleontology program, and the Office of International Science and Engineering of the National Science Foundation will jointly support Planetary Biodiversity Inventories (PBI). Proposals are invited from teams of investigators to conduct a worldwide, species-level systematic inventory of an entire major group of organisms. Each project will be expected to conduct the fieldwork necessary to fill gaps in existing collections, to produce descriptions, revisions, web pages, and interactive keys (or other automated identification tools) for all new and known species in the targeted group, to analyze their phylogenetic relationships, and to establish predictive classifications for them. Proposals may target any particular group of organisms, from terrestrial, fresh-water, or marine habitats, at any feasible level in the taxonomic hierarchy, but must be global in scope. **Assuming a sufficient number of high-quality proposals and the availability of funds, we anticipate making ca. 2-6 PBI awards, with durations from 3-5 years, totaling about \$14 million over the five-year period.** Most of the information that follows applies to all large-scale and/or long-term proposals; details specific to PBI follow the general instructions for large-scale and/or long-term projects.

Proposals for Large-Scale and/or Long-Term Inventories

Projects to collect, describe, and catalog globally all the species of a major clade, or to inventory a substantial portion of the biota of a geographic region of continental scale, usually involving thousands of species, will typically require teams of investigators and entail complex logistics. Proposals for continental or global inventories of particular clades should include the following information:

***** the taxonomic group to be inventoried, with indications of:**

- the evidence for its monophyly (or, if such evidence is not available, the evidence that will be used to provide clear delimitation of the taxonomic scope of the project),
- the current state of knowledge about the diversity, phylogenetic interrelationships, and classification of the group, and notable gaps in that knowledge (including knowledge of fossil taxa, if appropriate),
- the availability of existing collections of specimens (throughout, here broadly construed to include cultures, stocks, and other material samples) and notable gaps in the geographic coverage of those collections,
- the availability of Internet resources relevant to these organisms, and
- the justification for the proposed large-scale approach: why is it beyond the scope of current single-investigator or small-team projects, and why is it important to survey this particular group now?

***** the new collecting efforts that will be required, with comprehensive plans for:**

- sampling and data collection, including the intended geographic scale, the choice of sampling techniques, specimen preparation regimes, and types of data to be captured (morphological, behavioral, physiological, developmental, genomic, etc.)
- databasing of all new locality information, which must be fully georeferenced using GPS technology,
- retrospective locality data capture, including procedures for acquisition and quality control,
- methods to be used for judging the degree of completeness of sampling and for implementing "stop rules", and
- the long-term preservation, curation, and vouchering of material (and extracts); costs of specimen preparation and storage are eligible items for support (letters from curators of the relevant repositories may be included in the FastLane section on Supplementary Documentation).

***** the new descriptive and analytical work to be done, with plans for:**

- describing new taxa, in concert with revisionary work on all previously described members of the group,
- archiving and disseminating all the resulting datasets regarding specimens, localities, characters, matrices, images, phylogenetic trees, etc.,
- analyzing the phylogenetic interrelationships of the taxa and constructing predictive classifications reflecting the results of those analyses, and
- developing web pages for each species and interactive keys (or other automated identification tools) to enable non-specialists to identify all the species in the group.

All long-term and large-scale proposals must include a detailed Management Plan specifying:

- the personnel responsible for all major tasks, with time-scheduling across all members of the team for the duration of the project,
- annual milestones for judging productivity and progress,
- training activities, including field, laboratory, and museum experience for trainees, with special attention to international training experiences for U.S. students as well as to cooperation with foreign participants in training their students,
- plans for maintaining and enhancing leadership by the key team members (perhaps via an Executive Committee or Officer) and communication among all team members, as well as for expanding the group if that proves to be necessary or desirable, including plans for integration with colleagues not yet formally part of the group (both national and international),
- outreach efforts to disseminate results to the public as well as to other scientific communities (the hosting of workshops and other service activities are encouraged, to disseminate best-practices resulting from the project, new software, and other products, as are activities designed to encourage participation of investigators at small institutions, minority-serving institutions, community colleges, and secondary school teachers),
- the curatorial, computational, and (where appropriate) sequencing facilities and resources available to the team,

- the database models and elements, as specified above, and plans for maintenance of the databases beyond the duration of the grant, with identification of personnel charged with technical design and implementation (letters of support from Information Technology managers may be included in the FastLane section on Supplementary Documentation),

- plans for coordination with other U.S. or foreign-based projects involving the same or related organisms, where appropriate, and

- details of the logistics of international, cooperative work with host country scientists and students.

The Management Plan may be up to 5 pages in length and is in addition to the 15-page Project Description; it should be submitted in the Supplementary Documentation section of FastLane.

PBI special instructions

Introduction: What kinds of living things exist? Where do they live? How are they related? These are simple questions, but we have few answers, simple or otherwise. Were life to be discovered today on another planet, resources would quickly be mustered to inventory its diversity. Yet we remain ignorant about most of the diversity of life on this planet. Despite two and a half centuries of biological inventory effort, we do not have even a model for how to complete an inventory of all the species of any major group. PBI attempts to empower international teams of scientists and institutions to intensively inventory groups across geologic time and ecological space. By marshalling the unique strengths of systematics and systematic collections to enable biodiversity characterization and analysis on a global scale, these teams can help provide a comprehensive framework for understanding the biotic history and current ecosystems of earth.

The ALL Species Foundation, the Alfred P. Sloan Foundation, and the National Science Foundation propose to fund 2-6 all-biota inventories of major taxa, to demonstrate the feasibility of accomplishing global surveys within reasonable time frames. No projects of this magnitude have ever been attempted; these would provide the first rigorous models for answering global-scale questions with anything more than geographically arbitrary fragments of information. Each will require significant resources over a sustained period, depending on the size of the group, available expertise, and the current state of knowledge. Because the oceans that dominate our planet are so seriously undersampled, at least one award will be targeted specifically to a marine group of organisms.

Why are such studies crucial? They can answer the most basic questions of biodiversity for a major group, (relatively) completely and for the first time. They can provide a robust data set for conducting phylogenetic analyses, constructing predictive classifications, and establishing the most precise, informative language possible for biological communication. By encompassing everything known about both fossil and extant organisms, they can create a globally applicable system within which the distribution of species, and their characteristics, across ecological space and through geological time can be charted. They can produce maximally efficient means of predicting the distribution of as yet unknown attributes among organisms, thereby providing a conceptual framework for all of comparative biology. They can generate rigorously tested knowledge accessible to everyone, everywhere, for research, education, and application. They can produce interactive keys, or other automated identification tools, that will enable non-specialists to identify accurately all the species of these groups. If successful, these studies will provide models for workers on other groups to follow in accomplishing similar inventories in years rather than centuries. The speed-up is essential, as mounting evidence indicates that substantial biodiversity will otherwise go extinct before it gets inventoried, to our irreversible detriment.

Proposals: Projects for Planetary Biodiversity Inventories are expected to be ambitious, large-scale efforts that are multi-investigator, multi-institutional, and multi-national in scope. Proposals should address the issues enumerated in the sections above regarding large-scale and/or long-term inventories, but all these topics are intended for guidance, and not as constraints on innovative PBI projects.

Eligibility: Proposals are invited from consortia of U.S. and foreign academic institutions, and U.S. and foreign non-profit research institutions including natural history museums, marine laboratories, field stations, and botanical gardens with appropriate research and educational facilities (see NSF Grant Proposal Guide, NSF 02-02, Chapter 1, Section C). Single proposals should be submitted, with a single U.S. institution serving as the lead institution and collaborating institution's budgets accommodated as subcontracts. Neither "Group Proposals" nor "Collaborative Research Proposals" will be accepted. Collaborating scientists in foreign countries can be accommodated through subcontracts or through participant support or consultant mechanisms administered by the lead and/or subcontracting U.S. institutions.

Budgetary Information: Because funds from the sponsoring Foundations will not be commingled, PI's of successful proposals may be asked to prepare separate budgets to the ALL Species Foundation, Alfred P. Sloan Foundation, and/or NSF. NSF's collaboration with the ALL Species Foundation and the Alfred P. Sloan Foundation serves to increase the funding available for PBI projects. To allow NSF to share information from submitted proposals, and subsequent reviews and reports, with those organizations, investigators will be asked, after proposals have been received, for their written consent to share that information with those Foundations. The consent is voluntary, and will enable a project to be eligible for funding from all three Foundations. Without such consent, a project will be eligible for funding from NSF only.

Outline of Proposal: The body of the proposal should include three sections: a maximum of 15 pages for the Project Description, plus a maximum of 5 pages for the Management Plan (as detailed above), plus a maximum of 5 pages for Results of Prior NSF Support. For any PI, co-PI, or other senior personnel whose biographical information is supplied in the proposal, and who has received NSF funding in the past five years, information on the prior award(s) is required. Any collaborator who has received more than one prior award (excluding supplements) must report on the award most closely related to the proposal. Because PBI projects are expected to involve many senior investigators, the Results of Prior NSF Support are to be reported separately, in the Supplementary Documentation section of FastLane, thus allowing the full 15 pages to be used for the Project Description.

Coordination with Other Projects: If higher-level phylogenetic research on the chosen group of organisms is already funded by an NSF award (for example, through the Assembling the Tree of Life competition), the PI will be asked to provide a plan for coordinating activities with that funded project. If two or more PBI proposals with substantially overlapping or complementary goals and scope remain in consideration for funding after initial merit review, the PIs of those proposals may be asked to collaborate, and to submit a coordination plan prior to the final funding decision. Note that PBI projects are not required to include detailed phylogenetic analyses of the interrelationships of every covered species, but are expected to provide phylogenetic analyses for the genera and higher taxa in which those species are placed. For proposed marine inventories, PIs should consider and where appropriate include plans for integration with the Census of Marine Life, CoML (see www.coml.org), and for providing the resulting data to the Ocean Biogeographic Information System, OBIS (see www.iobis.org).

International Opportunity: The PBI initiative encourages laboratory-to-laboratory interactions among U.S. and foreign institutions to address PBI goals. NSF funds may be requested to support foreign investigators and students to work in U.S. laboratories and for U.S. investigators to work in foreign laboratories. However, indirect costs will not be supplied to foreign institutions, and foreign participants should also be encouraged to seek additional support for their parts of the project from their own national programs.

Conflicts of Interest Document: A Conflicts of Interest document must be included in the Additional Single Copy Documents section of the FastLane proposal submission. Include a table that lists all personnel associated with the project and the names of persons with conflicts of interest for all senior personnel whose biographical information is supplied in the proposal and any other personnel whose salary is requested in the project budget. Compile a single alphabetic list in the order: Last Name, First Name -- Institution -- Conflict Type. Conflicts to be identified are: (1) Ph.D. thesis advisor or advisee; (2) postdoctoral advisor or advisee for the previous 48 months; and (3) collaborators or co-authors for the past 48 months. A sample entry might read:

....Apple, Nancy -- Reed College -- Ph.D. advisee for [specify collaborator]

Follow this listing with an alphabetic list of all institutional conflicts: all institutions at which senior personnel hold staff or adjunct positions, or with which they have financial ties (please specify).

Project Summary: Note that proposals must separately address, within the one-page Project Summary, both of the merit criteria approved by the National Science Board: What is the intellectual merit of the proposed activity? and What are the broader impacts of the proposed activity? PBI projects are expected to make substantial contributions to training, to broadening the participation of underrepresented groups in science, and to enhancing scientific infrastructure and international partnerships, as well as to disseminate their results broadly, to a wide variety of user communities.

Titles of Proposals: Titles of proposals for Planetary Biodiversity Inventories should be prefaced with "PBI:" and submitted to the Biodiversity Surveys and Inventories program.

Contacts for Additional Information: Investigators with questions about PBI goals or proposal requirements are encouraged to contact the Program Director for BS&I, Dr. Norman Platnick (nplatnic@nsf.gov). Investigators with questions about the inclusion of paleontological components are encouraged to contact the Program Director for the Geology and Paleontology program, Dr. H. Richard Lane (hlane@nsf.gov). Investigators with questions about the inclusion of international components are encouraged to contact either

Dr. Vicki Booker (vbooker@nsf.gov) or Dr. Elizabeth Lyons (elyons@nsf.gov) in the Office of International Science and Engineering.

III. ELIGIBILITY INFORMATION

The categories of proposers identified in the [Grant Proposal Guide](#) are eligible to submit proposals under this program announcement/solicitation. In particular, institutions with personnel and interests in the broad field of biodiversity study such as academic institutions, natural history museums, marine and freshwater science institutes, field stations, and botanical gardens should consider research opportunities supportable through the BS&I program. Where appropriate, collaborating scientists in foreign countries can be accommodated through consultant or subaward mechanisms administered by the submitting U.S. institution. The same mechanisms may be used to add experts from other institutions to the project team, on a short-term basis or otherwise, as needs arise during the collection and inventory process.

IV. AWARD INFORMATION

Based on recent fiscal year experience, the Program anticipates making 35-40 awards, as standard or continuing grants, for a total of \$10 million in Fiscal Year 2003, subject to the availability of funds. Check the NSF website (at www.nsf.gov) through the Biology homepages for listings of awards over the last several fiscal years in the Biotic Surveys and Inventories program, for guidance on the range and scope of projects supported (www.nsf.gov/bio/deb/debsysbio.htm#biosi).

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Instructions:

Proposals submitted in response to this program announcement/solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF *Grant Proposal Guide* (GPG). The complete text of the GPG is available electronically on the NSF Website at: <http://www.nsf.gov/cgi-bin/getpub?gpg>. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (301) 947-2722 or by e-mail from pubs@nsf.gov.

Proposals should address the five topics described in this announcement's Program Description. In addition, attention is directed to the following considerations, which may require discussion and documentation.

Surveys and Inventories in the oceans and U.S. Great Lakes: Proposals to survey marine biodiversity that require the scheduling of NSF-UNOLS ship time must include a completed NSF-UNOLS Request Form (NSF Form 831). The UNOLS form may be obtained from the NSF Division of Ocean Sciences Ship Operations Program or directly from the UNOLS website (at http://sio.ucsd.edu/supp_groups/shipsked/forms/NSFform.html). Mail the completed UNOLS Request Form directly to the BS&I Program Director (NSF-Room 635, 4201 Wilson Blvd., Arlington, VA 22230). If the project requires time aboard non-UNOLS vessels, the proposal budget must reflect the direct cost of ship time. Use of UNOLS or other ship time also requires that permits to enter sovereign waters, in compliance with international laws of the sea, be obtained with the assistance of the U.S. Department of State if the researchers plan to collect specimens in any nation's sovereign waters. The Ship Operations Program of the NSF can assist in these negotiations. Contact information can be found on the NSF website for the Directorate for Geosciences, Division of Ocean Sciences at <http://www.geo.nsf.gov/oce>.

Surveys and Inventories in foreign countries: For surveys in countries other than the United States, include in the proposal a description of established collaborations with scientists and students from the host country, and how these individuals will be involved in the project, as well as the arrangements for the in-country housing of specimens and data. Arrangements to allocate specimens between host country institution(s) and U.S. institutions may be made, but type specimens and quality representative specimens should remain in the host country. Prior to an award, PIs must document that they have obtained necessary research agreements and all legally required collecting, import, and export permits. These documents include those needed not only to remove specimens from the field,

but also those required to export or import them across national boundaries, including compliance with CITES regulations. Provide collecting-permit documentation in hand at time of submission in the Supplementary Documentation section of the FastLane submission.

Surveys and Inventories in Antarctica or Greenland: Proposals that involve field work in Antarctica must include information about the logistic and operational requisites of the proposed research, and any environmental impacts. Instructions on proposal preparation for research in Antarctica are provided in the Program Announcement and Proposal Guide for the Antarctic Program of the Office of Polar Programs (OPP), currently NSF 02-086, which can be found on the NSF Online Documents System at <http://www.nsf.gov/>. Obtain information on working in Antarctica from the OPP prior to preparation of a proposal. All research projects in Greenland must be approved in advance by the Government of Denmark. Applications for projects in which U.S. citizens and U.S. nationals are involved in any way (logistic, operational and/or financial support) shall be submitted to the Danish Government through diplomatic channels (i.e., through the U.S. Department of State and the American Embassy, Copenhagen) to the Danish Ministry of Foreign Affairs. The Arctic Research Program of OPP can assist in the submission of these applications, and should be contacted for instructions prior to preparation of a proposal.

Vertebrate Animals: If the proposed research includes the collection of vertebrate animals, the Principal Investigator must respond to the NSF Grant Proposal Guide (NSF 01-2a) section on required documentation for proposals involving vertebrate animals; see the NSF website for the OnLine Documents System at <http://www.nsf.gov>.

Special Information and Supplementary Documentation: Provide information such as letters of collaboration, collecting permits, environmental impact statement, and other allowed items as noted in the current issuance of the GPG. Include letters of support and other materials (such as the vertebrate animal care certificate, if applicable) via the FastLane submission by adding them to the Supplementary Documentation section of FastLane. This information is not counted as part of the 15 page limit of the Project Description.

BIO Proposal Classification Form (PCF): Complete the BIO PCF as part of the NSF FastLane submission process. The PCF is an on-line coding system that allows the Principal Investigator to characterize the project when submitting a proposal to the Directorate for Biological Sciences. Once a PI begins preparation of the proposal in the NSF FastLane system and selects any program within the Directorate for Biological Sciences as the first or only organizational unit to review the program and has saved the Cover Sheet, then the PCF will be generated and available through the Form Preparation screen. Additional information about the BIO PCF is available in FastLane at <http://www.fastlane.nsf.gov/a1/BiolInstr.htm>.

Color Images: For cost and technical reasons, the Foundation cannot, at this time, reproduce proposals containing color. Therefore, PIs generally should not rely on colorized objects to describe their projects. PIs who must include in the Project Description very high resolution graphics or other graphics where exact color representations are required for proper interpretation by the reviewer, must submit 12 paper copies of the entire proposal (including a paper copy of page 1 of the Cover Sheet) for use in the review process. This submission is in addition to, not in lieu of, the required electronic submission of the proposal via FastLane. Such proposals must be postmarked (or provide a legible proof of mailing date assigned by the carrier) within five working days following the electronic submission of the proposal, and should be mailed directly to the BS&I Program Director (NSF-Room 635, 4201 Wilson Blvd., Arlington, VA 22230). Unless the proposal contains very high resolution graphics or other graphics where exact color representations are critical to the review of the proposal, proposers should not send paper copies.

Proposers are reminded to identify the program announcement/solicitation number ((02-186)) in the program announcement/solicitation block on the proposal Cover Sheet. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

B. Budgetary Information

Cost Sharing:

Cost sharing is not required in proposals submitted under this Program Solicitation.

C. Due Dates

Proposals must be submitted by the following date(s):

Full Proposal Target Date(s):

January 10, 2003

for BS&I and PBI;

July 10, 2003

for BS&I only

D. FastLane Requirements

Proposers are required to prepare and submit all proposals for this announcement/solicitation through the FastLane system. Detailed instructions for proposal preparation and submission via FastLane are available at: <http://www.fastlane.nsf.gov/a1/newstan.htm>. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program announcement/solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this announcement/solicitation.

Submission of Electronically Signed Cover Sheets. The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the [Grant Proposal Guide](#) for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Proposers are no longer required to provide a paper copy of the signed Proposal Cover Sheet to NSF. Further instructions regarding this process are available on the FastLane Website at: <http://www.fastlane.nsf.gov>

VI. PROPOSAL REVIEW INFORMATION

A. NSF Proposal Review Process

Reviews of proposals submitted to NSF are solicited from peers with expertise in the substantive area of the proposed research or education project. These reviewers are selected by Program Officers charged with the oversight of the review process. NSF invites the proposer to suggest, at the time of submission, the names of appropriate or inappropriate reviewers. Care is taken to ensure that reviewers have no conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority-serving institutions, or adjacent disciplines to that principally addressed in the proposal.

The National Science Board approved revised criteria for evaluating proposals at its meeting on March 28, 1997 ([NSB 97-72](#)). All NSF proposals are evaluated through use of the two merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

On July 8, 2002, the NSF Director issued Important Notice 127, Implementation of new Grant Proposal Guide Requirements Related to the Broader Impacts Criterion. This Important Notice reinforces the importance of addressing both criteria in the preparation and review of all proposals submitted to NSF. NSF continues to strengthen its internal processes to ensure that both of the merit review criteria are addressed when making funding decisions.

In an effort to increase compliance with these requirements, the January 2002 issuance of the GPG incorporated revised proposal preparation guidelines relating to the development of the Project Summary and Project Description. Chapter II of the GPG specifies that Principal Investigators (PIs) must address both merit review criteria in separate statements within the one-page Project Summary. This chapter also reiterates that broader impacts resulting from the proposed project must be addressed in the Project Description and described as an integral part of the narrative.

Effective October 1, 2002, NSF will return without review proposals that do not separately address both merit review criteria within the Project Summary. It is believed that these changes to NSF proposal preparation and processing guidelines will more clearly articulate the importance of broader impacts to NSF-funded projects.

The two National Science Board approved merit review criteria are listed below (see the [Grant Proposal Guide](#) Chapter III.A for further information). The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which he/she is qualified to make judgements.

What is the intellectual merit of the proposed activity?

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?

How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

NSF staff will give careful consideration to the following in making funding decisions:

Integration of Research and Education

One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

Integrating Diversity into NSF Programs, Projects, and Activities

Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

Additional Review Criteria

Reviewers of BS&I proposals will in particular attend closely to the five topics of Conceptual Issues, Taxonomic Breadth, Geographic and Ecological Scale, Urgency, and Management Plan described in the section on Project Description in their evaluation. As well, preference will be given to projects with clear, convincing plans for Internet-accessible dissemination in interoperable formats of the results of BS&I supported activity.

B. Review Protocol and Associated Customer Service Standard

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Proposals submitted in response to this announcement/solicitation will be reviewed by Ad Hoc Review followed by Panel Review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Director. In addition, the proposer will receive an explanation of the decision to award or decline funding.

NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the date of receipt. The interval ends when the Division Director accepts the Program Officer's recommendation.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program Division administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See section VI.A. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (NSF-GC-1); * or Federal Demonstration Partnership (FDP) Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreement awards also are administered in accordance with NSF Cooperative Agreement Terms and Conditions (CA-1). Electronic mail notification is the preferred way to transmit NSF awards to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/home/grants/grants_gac.htm. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (301) 947-2722 or by e-mail from pubs@nsf.gov.

More comprehensive information on NSF Award Conditions is contained in the NSF *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Website at <http://www.nsf.gov/cgi-bin/getpub?gpm>. The GPM is also for sale through the Superintendent of Documents, Government Printing Office (GPO), Washington, DC 20402. The telephone number at GPO for subscription information is (202) 512-1800. The GPM may be ordered through the GPO Website at <http://www.gpo.gov>.

Special Award Conditions:

Special specimen collection conditions apply. The awardee shall ensure that award activities carried on both inside and outside the U.S. and its territories and possessions are coordinated, as necessary, with appropriate Government authorities, and that appropriate licenses, permits or approvals are obtained prior to undertaking proposed activities. NSF does not assume responsibility for awardee compliance with the laws and regulations of the country in which the work is to be conducted.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

Special Reporting Requirements:

The Principal Investigator shall provide a summary, in the "Special Requirements" section of each annual and final project report, of all permits, licenses or other necessary approvals associated with specimen collection. The information should include the names of all permits/licenses/necessary approvals, the granting authority, date acquired, duration, and the purpose of the permit/license/approval.

Within 90 days after the expiration of an award, the PI also is required to submit a final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project reporting system, available through FastLane, for preparation and submission of annual and final project reports. This system permits electronic submission and updating of project reports, including information on project participants (individual and organizational), activities and findings, publications, and other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system.

VIII. CONTACTS FOR ADDITIONAL INFORMATION

General inquiries regarding this program should be made to:

- Norman Platnick, Program Director, Directorate for Biological Sciences, Division of Environmental Biology, 635 N, telephone: (703) 292-8481, fax: (703) 292-9064, email: nplatnic@nsf.gov

Program Officers, Systematic and Population Biology Cluster, Directorate for Biological Sciences, Division of Environmental Biology, Room 635, telephone 703-292-8481.

For questions related to the use of FastLane, contact:

- Elaine M. Washington, Program Technology Analyst, Directorate for Biological Sciences, Division of Environmental Biology, 635 N, telephone: 703-292-8481, fax: 703-292-9064, email: biofl@nsf.gov

IX. OTHER PROGRAMS OF INTEREST

The NSF *Guide to Programs* is a compilation of funding for research and education in science, mathematics, and engineering. The NSF *Guide to Programs* is available electronically at <http://www.nsf.gov/cgi-bin/getpub?gp>. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter.

Many NSF programs offer announcements or solicitations concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices. Any changes in NSF's fiscal year programs occurring after press time for the *Guide to Programs* will be announced in the NSF [E-Bulletin](#), which is updated daily on the NSF Website at <http://www.nsf.gov/home/ebulletin>, and in individual program announcements/solicitations. Subscribers can also sign up for NSF's [Custom News Service](http://www.nsf.gov/home/cns/start.htm) (<http://www.nsf.gov/home/cns/start.htm>) to be notified of new funding opportunities that become available.

Microbial Observatories. The Directorate for Biological Sciences (BIO) has announced a competition to establish research activities by individual investigators or teams of investigators to develop and conduct research at a variety of sites dedicated to studies of microbial communities over time and across environmental gradients. The long-term goal of the Microbial Observatories (MO) activity is to discover previously unknown microbes and to describe and characterize microbial diversity, phylogenetic relationships, interactions, and other novel properties by developing a network of sites, "microbial observatories." The Program Announcement (NSF 02-118) is

available on the NSF website at <http://www.nsf.gov/pubs/2002/nsf02118/nsf02118.htm>.

Partnerships for Enhancing Expertise in Taxonomy (PEET). In partnership with academic institutions, botanical gardens, freshwater and marine institutes, and natural history museums, the National Science Foundation seeks to enhance taxonomic research and help prepare future generations of experts. Through its Special Competition in Systematic Biology, NSF will support competitively reviewed projects that target groups of poorly known organisms for modern monographic research. Projects must train new taxonomists (two per project minimally) and must translate current expertise into electronic databases and other products with broad accessibility to the scientific community. The Program Announcement (NSF 00-140) is available on the NSF website at <http://www.nsf.gov/pubs/2000/nsf00140/nsf00140.htm>.

Assembling the Tree of Life (AToL). A flood of new information, from whole-genome sequences to inventories of earth's biota, is transforming 21st century biology. Along with comparative data on morphology, fossils, development, behavior, and interactions of all forms of life on earth, these new data streams make even more critical the need for an organizing framework for information retrieval, analysis, and prediction. Phylogeny, the genealogical map for all lineages of life on earth, provides an overall framework to facilitate information retrieval and biological prediction. Currently, single investigators or small teams of researchers are studying the evolutionary pathways of heredity within particular phyla or domains. Assembly of a framework phylogeny, or Tree of Life, for all 1.7 million described species requires a greatly magnified effort by large teams working across institutions and disciplines. This is the overall goal of the Assembling the Tree of Life activity. The National Science Foundation invites research proposals from multidisciplinary teams to conduct creative and innovative research that will resolve phylogenetic relationships for large groups of organisms on the Tree of Life. Teams of investigators also will be supported for projects in data acquisition, analysis, algorithm development and dissemination in computational phylogenetics and phyloinformatics. The Program Announcement (NSF 02-074) is available on the NSF website at <http://www.nsf.gov/pubs/2002/nsf02074/nsf02074.htm>

Biological Research Collections (BRC). The Biological Research Collections program in the Division of Biological Infrastructure (DBI) provides support for biological collection improvements, collection-related databasing, and research to develop better techniques for curation and collection management. Collections may include natural history specimens, cultures, stocks, or direct artifacts of organisms such as recorded sounds or photographic images. The Program Announcement (NSF 02-117) is available from the NSF website at <http://www.nsf.gov/pubs/2002/nsf02117/nsf02117.htm>.

Informal Science Education Supplements. The Informal Science Education Program (ISE) in the Directorate for Education and Human Resources (EHR) funds projects that provide rich and stimulating contexts and experiences for individuals of all ages, interests, and backgrounds to increase their appreciation for and understanding of science. The ISE program will consider requests for up to \$50,000 to supplement current research awards from any NSF directorate to assist in the broader dissemination of research results and to promote science literacy for the general public in an out-of-school setting. The supplement can be used for any activity that falls within the definition of an informal science education experience such as media presentations, exhibits, or youth-based activities. For further information, see the ISE supplement announcement at <http://www.ehr.nsf.gov/EHR/ESIE/resawrd/lse-supl.htm>.

Research in Undergraduate Institutions (RUI). Faculty members in predominantly undergraduate institutions are eligible to apply for BS&I awards under the RUI program (optionally, they may apply in a regular proposal submission); the main difference between RUI proposals and "regular" NSF proposals is the additional requirement that RUI proposals must include an RUI Impact Statement that describes the expected effects of the proposed research on the research and educational environment of the institution. Single faculty members and groups of collaborating investigators from different RUI institutions are eligible for RUI awards. In addition, faculty members at predominantly undergraduate institutions are eligible for support as visiting scientists with NSF-funded investigators at other institutions through the Research Opportunity Awards (ROA) activity, usually funded as supplements to ongoing NSF research grants. See the RUI (and ROA) program announcement (NSF 00-144) at <http://www.nsf.gov/pubs/2000/nsf00144/nsf00144.htm>.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Awardees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities and persons with disabilities to compete fully in its programs. In accordance with Federal statutes, regulations and NSF

policies, no person on grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF, although some programs may have special requirements that limit eligibility.

Facilitation Awards for Scientists and Engineers with Disabilities (FASSED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the GPG Chapter 11, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at <http://www.nsf.gov>

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **For General Information** (NSF Information Center): (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**

Send an e-mail to: pubs@nsf.gov

or telephone: (301) 947-2722
- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to applicant institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies needing information as part of the review process or in order to coordinate programs; and to another Federal agency, court or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to an information collection unless it displays a valid OMB control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne Plimpton,

Reports Clearance Officer, Division of Administrative Services, National Science Foundation, Arlington, VA 22230.

OMB control number: 3145-0058.

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